

حمل الآن

مجاناً وحصرياً

المراجعة رقم (1)

اختبار شهر اكتوبر



Quiz

1

on lesson 1 – unit 1

Total mark

10

Answer the following questions :

First question

4 marks

1 mark for each item

Choose the correct answer from those given :

(1) The domain of the function $f : f(x) = \sqrt{x-2}$ is

(a) $[2, \infty[$

(b) $]2, \infty[$

(c) $]-\infty, 2]$

(d) $]-\infty, 2[$

(2) The domain of the function $f : f(x) = \sqrt[3]{x-3}$ is

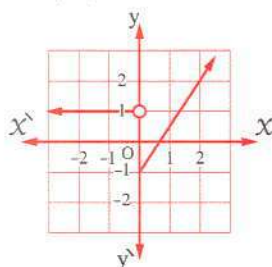
(a) $[3, \infty[$

(b) $]3, \infty[$

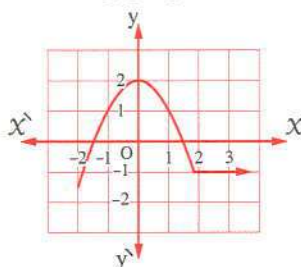
(c) $]-\infty, 3[$

(d) $\mathbb{R}$

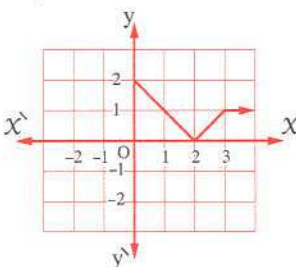
(3) Which of the following graphs does not represent a function in X ?



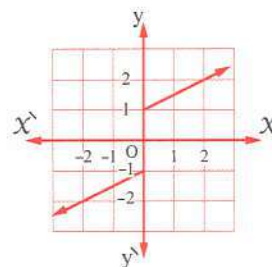
(a)



(b)



(c)



(d)

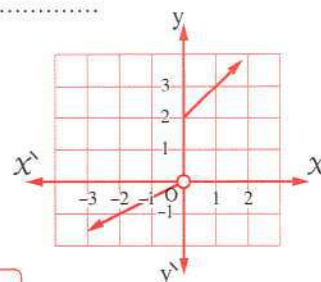
(4) The opposite figure represents a function whose domain is

(a) $\mathbb{R}$

(b) $\mathbb{R} - [0, 2[$

(c) $\mathbb{R} - \{0\}$

(d) $\mathbb{R} -]0, 2]$

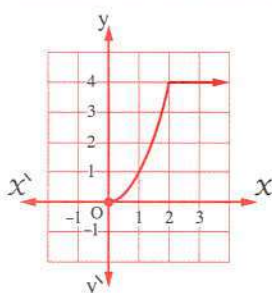


Second question

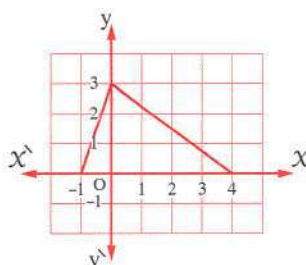
6 marks

2 marks for each item

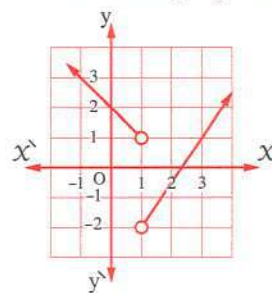
Discuss the monotony of each of the functions represented by the following figures :



(1)



(2)



(3)

Quiz

2

till lesson 2 – unit 1

Total mark

10

Answer the following questions :**First question**

4 marks

1 mark for each item

Choose the correct answer from those given :(1) The domain of the function $f : f(x) = \frac{1}{x}$ is

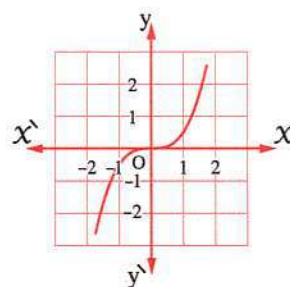
- (a) $\mathbb{R}$ (b) $\mathbb{R} - \{0\}$ (c) $\mathbb{R} - \{1\}$ (d) $\{0\}$

(2) Which of the following functions is even ?

- (a) $\sin x$ (b) $x \cos x$ (c) $x \sin x$ (d) $\tan x$

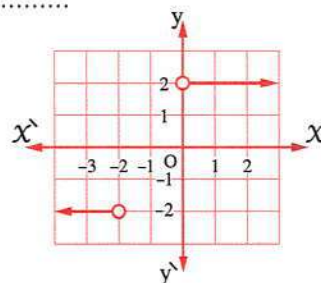
(3) The opposite figure represents a function which is

- (a) even.
(b) odd.
(c) neither even nor odd.
(d) symmetric about y-axis.



(4) The opposite figure represents a function whose range is

- (a) $\mathbb{R}$
(b) $\mathbb{R} - [-2, 0]$
(c) $]-2, 2[$
(d) $\{-2, 2\}$

**Second question**

6 marks

2 marks for each item

Determine the type of the functions defined by the following rules whether they are odd, even or otherwise :

(1) $f(x) = x^4 + x^2$

(2) $f(x) = x^2 \sin x$

(3) $f(x) = \frac{x^3 + 2}{x - 3}$

Quiz

3

till lesson 3 – unit 1

Total mark

10

Answer the following questions :**First question** 4 marks

Graph the curve of the function $f : f(x) = \begin{cases} |x| & , \quad x \leq 0 \\ x^2 & , \quad x > 0 \end{cases}$

, from the graph deduce the range , determine its type whether it is even , odd or otherwise and discuss its monotony.

Second question 3 marks

Graph the function $f : f(x) = \begin{cases} -x & , \quad -2 \leq x < 0 \\ x & , \quad 0 < x < 2 \end{cases}$

, from the graph deduce the range and discuss its monotony.

Third question 3 marks

Graph the function $f : f(x) = \begin{cases} x-1 & , \quad 2 < x \leq 4 \\ -1 & , \quad -2 \leq x \leq 2 \end{cases}$

, from the graph deduce the range.

Quiz

4

till lesson 4 – unit 1

Total mark

10

Answer the following questions :

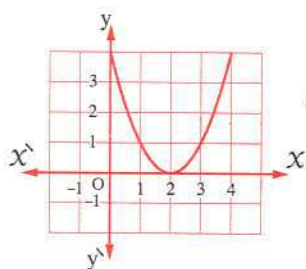
First question

4 marks

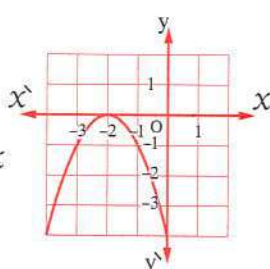
1 mark for each item

Choose the correct answer from those given :

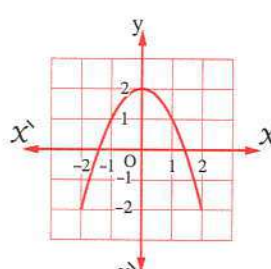
(1) If f is a function where $f(x) = x^2 + 2$, then the graph which represents f is



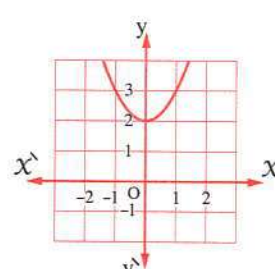
(a)



(b)



(c)



(d)

(2) The range of the function f where $f(x) = \begin{cases} 0 & \text{at } x \leq 0 \\ -1 & \text{at } x > 0 \end{cases}$ is

(a) $\{0\}$

(b) $\{-1\}$

(c) $\mathbb{R}$

(d) $\{0, -1\}$

(3) The symmetric point of the function curve of f where $f(x) = x^3$ is

(a) (1, 1)

(b) (0, 0)

(c) (1, 0)

(d) (0, 1)

(4) The range of the function $f : f(x) = \frac{1}{x-2} - 1$ is

(a) $\mathbb{R} - \{2\}$

(b) $\mathbb{R} - \{1\}$

(c) $\mathbb{R} - \{-1\}$

(d) $\mathbb{R}$

Second question

6 marks

Use the curve of the function $f : f(x) = x^3$ to represent the function $g : g(x) = (x-3)^3$, show the domain of g and its range, discuss its monotony and determine its type whether it is even, odd or otherwise.

Quiz

5

till lesson 5 – unit 1

Total mark

10

Answer the following questions :

First question

4 marks

1 mark for each item

Choose the correct answer from those given :

(1) If $f(x) = 5$, then $f(7) = \dots\dots\dots$

- (a) 1 (b) 5 (c) 7 (d) 35

(2) The vertex of the function curve of f where $f(x) = x^2 + 1$ is $\dots\dots\dots$

- (a) (1, 0) (b) (-1, 0) (c) (0, 1) (d) (0, -1)

(3) The curve of the function $g : g(x) = x^3 + 2$ is the same as the curve of the function $f : f(x) = x^3$ by translation 2 units in the direction of $\dots\dots\dots$

- (a) $\overrightarrow{OX}$ (b) $\overrightarrow{OX}$ (c) $\overrightarrow{Oy}$ (d) $\overrightarrow{Oy}$

(4) The solution set in $\mathbb{R}$ of the equation : $|x| + 1 = 0$ is $\dots\dots\dots$

- (a) {1} (b) {-1} (c) {1, -1} (d) $\emptyset$

Second question

2 marks

Find in $\mathbb{R}$ the solution set of the equation : $\sqrt{x^2 - 2x + 1} = 8$

Third question

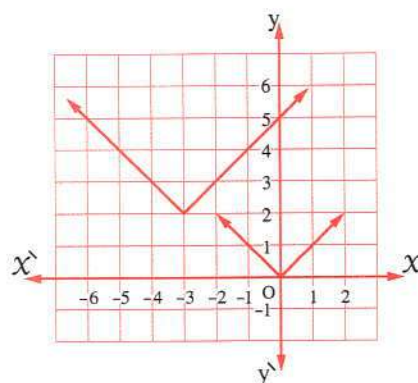
4 marks

1 mark for each item

In the opposite figure :

The curve of the function $f : f(x) = |x|$ is drawn, then it is translated in the two directions of coordinate axes, write :

- (1) The rule of the resulted function.
(2) The coordinates of its vertex.
(3) Its range and deduce its monotony.
(4) The equation of its symmetric axis.



Total mark

Quiz

1

on lesson 1 – unit 3

10

Answer the following questions :

First question

4 marks

1 mark for each item

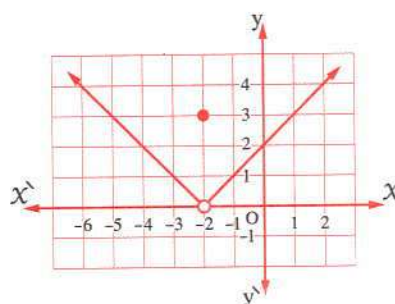
From the opposite graph , complete each of the following :

(1) $\lim_{x \rightarrow -2} f(x) = \dots\dots\dots$

(2) $\lim_{x \rightarrow 0} f(x) = \dots\dots\dots$

(3) $f(-2) = \dots\dots\dots$

(4) $f(0) = \dots\dots\dots$



Second question

6 marks

2 marks for each item

Choose the correct answer from those given :

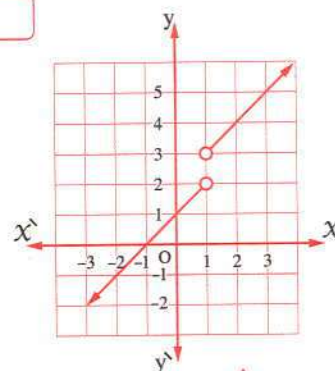
(1) The opposite graph represents the curve of the function f , then $\lim_{x \rightarrow 1} f(x) = \dots\dots\dots$

(a) 2

(b) 3

(c) 1

(d) not exist.



(2) In the opposite figure :

When $\theta \rightarrow \frac{\pi}{2}$

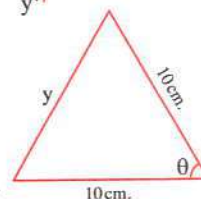
, then $y \rightarrow \dots\dots\dots$ cm.

(a) 2

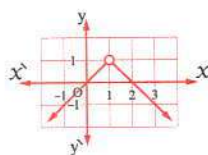
(b) 5

(c) 10

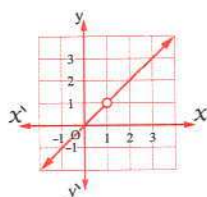
(d) $10\sqrt{2}$



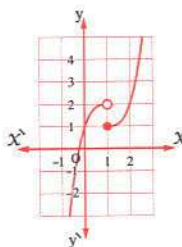
(3) Which of the following functions doesn't have a limit at $x = 1$?



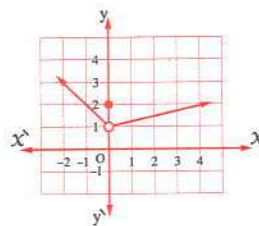
(a)



(b)



(c)



(d)

Quiz

2

till lesson 2 – unit 3

Total mark

10

Answer the following questions :

First question

4 marks

1 mark for each item

Choose the correct answer from those given :

(1) $\lim_{x \rightarrow 1} \left(\frac{3}{4} \right) = \dots\dots\dots$

(a) 3

(b) 4

(c) $\frac{3}{4}$

(d) 1

(2) $\lim_{x \rightarrow 0} (2x^2 + 3) = \dots\dots\dots$

(a) 2

(b) 3

(c) 5

(d) 7

(3) $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1} = \dots\dots\dots$

(a) 1

(b) 2

(c) -1

(d) not exist.

(4) **From the opposite figure :**

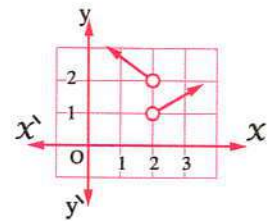
$\lim_{x \rightarrow 2} f(x) = \dots\dots\dots$

(a) 1

(b) zero

(c) 2

(d) not exist.



Second question

4 marks

2 marks for each item

Find each of the following :

(1) $\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 4}$

(2) $\lim_{x \rightarrow 3} \frac{\sqrt{x+1} - 2}{x - 3}$

Third question

2 marks

If $\lim_{x \rightarrow 2} \frac{a}{x+1} = 4$, find the value of a

THIRD

Accumulative quizzes on trigonometry

Quiz

1

on lesson 1 – unit 4

Total mark

10

Answer the following questions :

First question

4 marks

1 mark for each item

Choose the correct answer from those given :

(1) In $\triangle ABC$, $m(\angle A) = 30^\circ$, $a = 6$ cm., then $\frac{b}{\sin B} = \dots\dots\dots$ cm.

- (a) 3 (b) 6 (c) $\frac{1}{5}$ (d) 12

(2) In $\triangle ABC$, $2 \sin A = 3 \sin B = 4 \sin C$, then $a : b : c = \dots\dots\dots$

- (a) 2 : 3 : 4 (b) 4 : 3 : 2 (c) 3 : 4 : 6 (d) 6 : 4 : 3

(3) The radius length of the circumcircle of $\triangle ABC$ in which $m(\angle A) = 30^\circ$, $a = 10$ cm. is $\dots\dots\dots$ cm.

- (a) 5 (b) 10 (c) 20 (d) 40

(4) In $\triangle ABC$, $2 r \sin A = \dots\dots\dots$

- (a) a (b) b (c) c (d) area of $\triangle ABC$

Second question

3 marks

In $\triangle ABC$, $m(\angle A) = 23^\circ$, $m(\angle B) = 67^\circ$, and the radius length of its circumcircle = 10 cm., find each of a , b to the nearest cm.

Third question

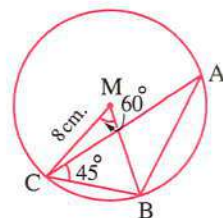
3 marks

In the opposite figure :

M is the centre of the circle whose radius length is 8 cm.,

$m(\angle BMC) = 60^\circ$, $m(\angle ACB) = 45^\circ$

Find : the length of each of $\overline{AB}$, $\overline{AC}$



Test

1

Total mark

20

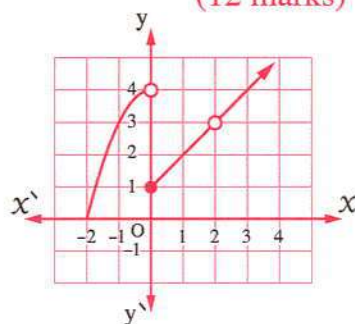
(12 marks)

1 Choose the correct answer from the given ones :

(1) In the opposite figure :

$$\lim_{x \rightarrow 0} f(x) = \dots\dots\dots$$

- (a) 2
- (b) 4
- (c) 1
- (d) not exist.



(2) In $\triangle ABC$, $\frac{\sin A}{3} = \frac{2 \sin B}{5} = \frac{\sin C}{4}$, then $a : b : c = \dots\dots\dots$

- (a) 6 : 5 : 8
- (b) 8 : 5 : 6
- (c) 7 : 2 : 4
- (d) 3 : 5 : 4

(3) $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^2 - 5x + 6} = \dots\dots\dots$

- (a) 2
- (b) 3
- (c) 6
- (d) 4

(4) The function $f : f(x) = -x^2$ is decreasing when $x \in \dots\dots\dots$

- (a) $\mathbb{R}$
- (b) $\mathbb{R}^+$
- (c) $\mathbb{R}^-$
- (d) $\mathbb{R}^*$

(5) In $\triangle ABC$, if $b = 5$ cm, $m(\angle B) = 30^\circ$, then the circumference of its circumcircle = $\dots\dots\dots$ cm.

- (a) $50\sqrt{3}\pi$
- (b) 5π
- (c) $10\sqrt{3}\pi$
- (d) 10π

(6) The curve of the function $f(x) = x^2 - 4$ is the same as the curve of the function $g(x) = x^2$ by translation 4 units in direction of $\dots\dots\dots$

- (a) $\overrightarrow{OX}$
- (b) $\overrightarrow{O\tilde{X}}$
- (c) $\overrightarrow{OY}$
- (d) $\overrightarrow{O\tilde{Y}}$

(7) If the domain of the function $f : f(x) = \frac{1}{x^2 + kx + 9}$ is $\mathbb{R} - \{3\}$, then $k = \dots\dots\dots$

- (a) 6
- (b) -6
- (c) ± 6
- (d) -36

(8) The range of the function $f : f(x) = \frac{1}{x} + 2$ is $\dots\dots\dots$

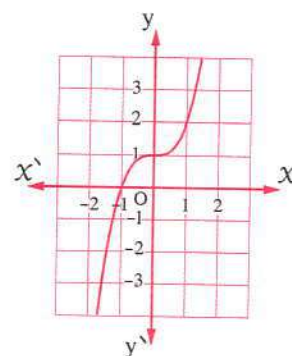
- (a) $\mathbb{R} - \{-3\}$
- (b) $\mathbb{R} - \{2\}$
- (c) $\mathbb{R} - \{3\}$
- (d) $\mathbb{R} - \{2, 3\}$

(9) The type of the function $f : f(x) = x \sin x$ is

- (a) even. (d) odd.
(c) neither odd nor even. (d) constant.

(10) The rule of the function represented by the opposite figure is

- (a) $y = x^3 - 1$ (b) $y = (x + 1)^3$
(c) $y = (x - 1)^3$ (d) $y = x^3 + 1$



(11) $\lim_{x \rightarrow 1} \left(\frac{3}{4} \right) = \dots\dots\dots$

- (a) 3 (b) 4 (c) $\frac{3}{4}$ (d) 1

(12) $\lim_{x \rightarrow 0} \frac{\sqrt{x+1} - 1}{x} = \dots\dots\dots$

- (a) zero (b) $\sqrt{2}$ (c) $\frac{1}{2}$ (d) not exist.

2 Answer the following questions :

(1) Graph the curve of the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ where $f(x) = |x| - 4$, state range, type and the monotony. (2 marks)

(2) Determine the domain of the real function $f : f(x) = \frac{1}{\sqrt{3-x}}$ (2 marks)

(3) Find : $\lim_{x \rightarrow 1} \frac{\sqrt{4x-3} - 1}{x-1}$ (2 marks)

(4) ΔABC in which $m(\angle B) = 35^\circ$, $m(\angle C) = 70^\circ$ and radius of its circumcircle = 16 cm. Find area and perimeter of ΔABC to nearest unit. (2 marks)

Test

2

Total mark

20

1 Choose the correct answer from the given ones :

(1) The function $f : f(x) = 1 - |x|$ is increasing on

where $f : \mathbb{R} \longrightarrow \mathbb{R}$

- (a) $]1, \infty[$ (b) $]0, \infty[$ (c) $] - \infty, 1[$ (d) $] - \infty, 0[$

(2) If $\lim_{x \rightarrow 4} \frac{x^2 + 7x + a}{x^2 - 6x + 8} = \frac{15}{2}$, then $a = \dots\dots\dots$

- (a) -44 (b) 7 (c) -8 (d) 8

(3) $\lim_{x \rightarrow 0} \frac{(x+5)^2 - 25}{x} = \dots\dots\dots$

- (a) 2 (b) 25 (c) 5 (d) 10

(4) The point of symmetry of the function $f : f(x) = \frac{1}{x-2} + 1$ is

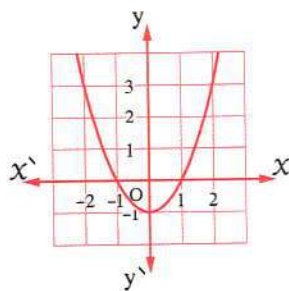
- (a) $(-2, 1)$ (b) $(-2, -1)$ (c) $(2, 1)$ (d) $(2, -1)$

(5) The domain of the function $f : f(x) = \begin{cases} 3-x & , \quad -2 \leq x < 2 \\ x & , \quad 2 \leq x \leq 5 \end{cases}$ is

- (a) $[1, 5]$ (b) $[-2, 5]$ (c) $]1, 5]$ (d) $[-2, 2]$

(6) Which of the following rules defined the curve of the function shown in the opposite figure ?

- (a) $f(x) = x^3 - 1$ (b) $f(x) = x^2 - 1$
(c) $f(x) = x^3 + 1$ (d) $f(x) = x^2 + 1$



(7) In $\triangle ABC$, $AB = 4$ cm, $\sin C = \frac{1}{3}$, then the radius of the circle passes through its vertices = cm.

- (a) 6 (b) 8 (c) 4 (d) 12

(8) In $\triangle ABC$, $m(\angle B) = 52^\circ$, $m(\angle C) = 48^\circ$, the perimeter of the triangle = 30 cm, then $a \approx \dots\dots\dots$ (to the nearest cm.)

- (a) 15 (b) 21 (c) 12 (d) 20

(9) If f is an odd function, and its domain is $\mathbb{R}$, $a \in \mathbb{R}$, then $\frac{f(a) + f(-a)}{2} = \dots\dots\dots$

- (a) zero (b) $f(a)$ (c) $f(-a)$ (d) $f(0)$

(10) Which of the following rules defined a function that is not odd?

- (a) $f(x) = \sin x$ (b) $f(x) = \sec x$ (c) $f(x) = x^3$ (d) $f(x) = \frac{1}{x}$

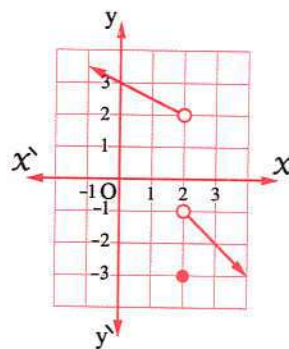
(11) $\lim_{x \rightarrow -2} \frac{1}{|x|} = \dots\dots\dots$

- (a) 1 (b) -1 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

(12) In the opposite figure :

$\lim_{x \rightarrow 2} f(x) = \dots\dots\dots$

- (a) -3 (b) 2
(c) -1 (d) does not exist.



2 Answer the following questions :

(1) Graph the function $f: \mathbb{R} \rightarrow \mathbb{R}$ where $f(x) = (x-2)^3 - 1$, from the graph find the range, the monotony and determine if it is odd, even or otherwise. (2 marks)

(2) If f_1, f_2 are two real functions, $f_1(x) = x^5$, $f_2(x) = \sin x$

Determine the type of the function $(f_1 + f_2)$ where it is even, odd or otherwise.

(2 marks)

(3) Find : $\lim_{x \rightarrow -1} \frac{x+1}{\sqrt{x+5}-2}$

(2 marks)

(4) $\triangle ABC$ in which $b = 10$ cm, $m(\angle A) = 40^\circ$, $m(\angle C) = 80^\circ$, find the length of greatest side in the triangle

(2 marks)

Test

1

Total mark

20

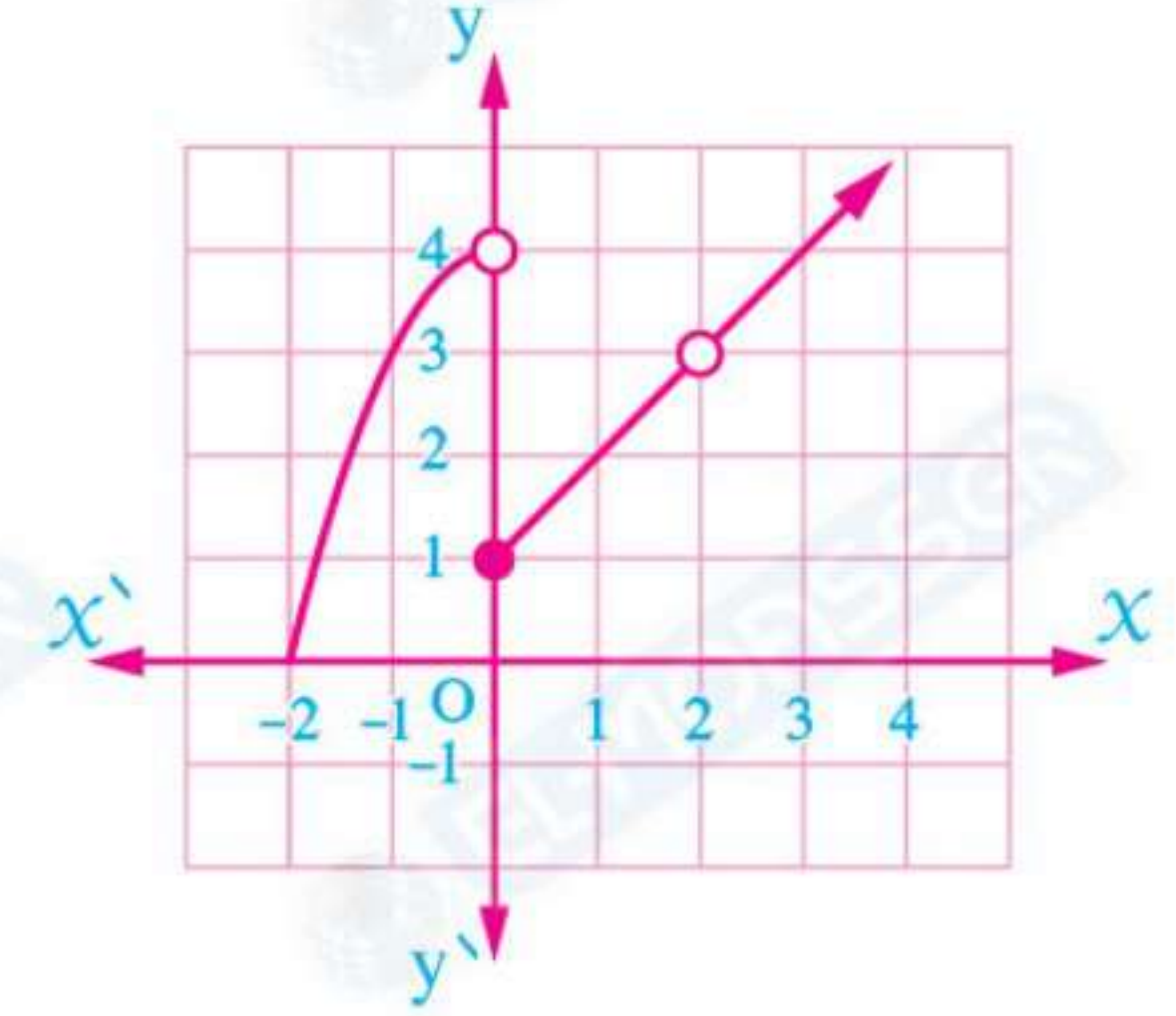
1 Choose the correct answer from those given :

(12 marks)

1 In the opposite figure :

$$\lim_{x \rightarrow 0} f(x) = \dots\dots\dots$$

- (a) 2 (b) 4
(c) 1 (d) not exist.



2 In ΔABC , $\frac{\sin A}{3} = \frac{2 \sin B}{5} = \frac{\sin C}{4}$, then $a : b : c = \dots\dots\dots$

- (a) 6 : 5 : 8 (b) 8 : 5 : 6 (c) 7 : 2 : 4 (d) 3 : 5 : 4

3 $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^2 - 5x + 6} = \dots\dots\dots$

- (a) 2 (b) 3 (c) 6 (d) 4

4 The function $f : f(x) = -x^2$ is decreasing when $x \in \dots\dots\dots$

- (a) $\mathbb{R}$ (b) $\mathbb{R}^+$ (c) $\mathbb{R}^-$ (d) $\mathbb{R}^*$

5 In ΔABC , if $b = 5$ cm. , $m(\angle B) = 30^\circ$, then the circumference of its circumcircle = $\dots\dots\dots$ cm.

- (a) $50\sqrt{3}\pi$ (b) 5π (c) $10\sqrt{3}\pi$ (d) 10π

6 The curve of the function $f(x) = x^2 - 4$ is the same as the curve of the function $g(x) = x^2$ by translation 4 units in direction of $\dots\dots\dots$

- (a) $\vec{OX}$ (b) $\vec{O\bar{X}}$ (c) $\vec{OY}$ (d) $\vec{O\bar{Y}}$

7 If the domain of the function $f : f(x) = \frac{1}{x^2 + kx + 9}$ is $\mathbb{R} - \{3\}$, then $k = \dots\dots\dots$

- (a) 6 (b) -6 (c) ± 6 (d) -36

8 The range of the function $f : f(x) = \frac{1}{x} + 2$ is $\dots\dots\dots$

- (a) $\mathbb{R} - \{-3\}$ (b) $\mathbb{R} - \{2\}$ (c) $\mathbb{R} - \{3\}$ (d) $\mathbb{R} - \{2, 3\}$

9 The type of the function $f : f(x) = x \sin x$ is $\dots\dots\dots$

- (a) even. (b) odd. (c) neither odd nor even. (d) constant.

- 10 The rule of the function represented by the opposite figure is

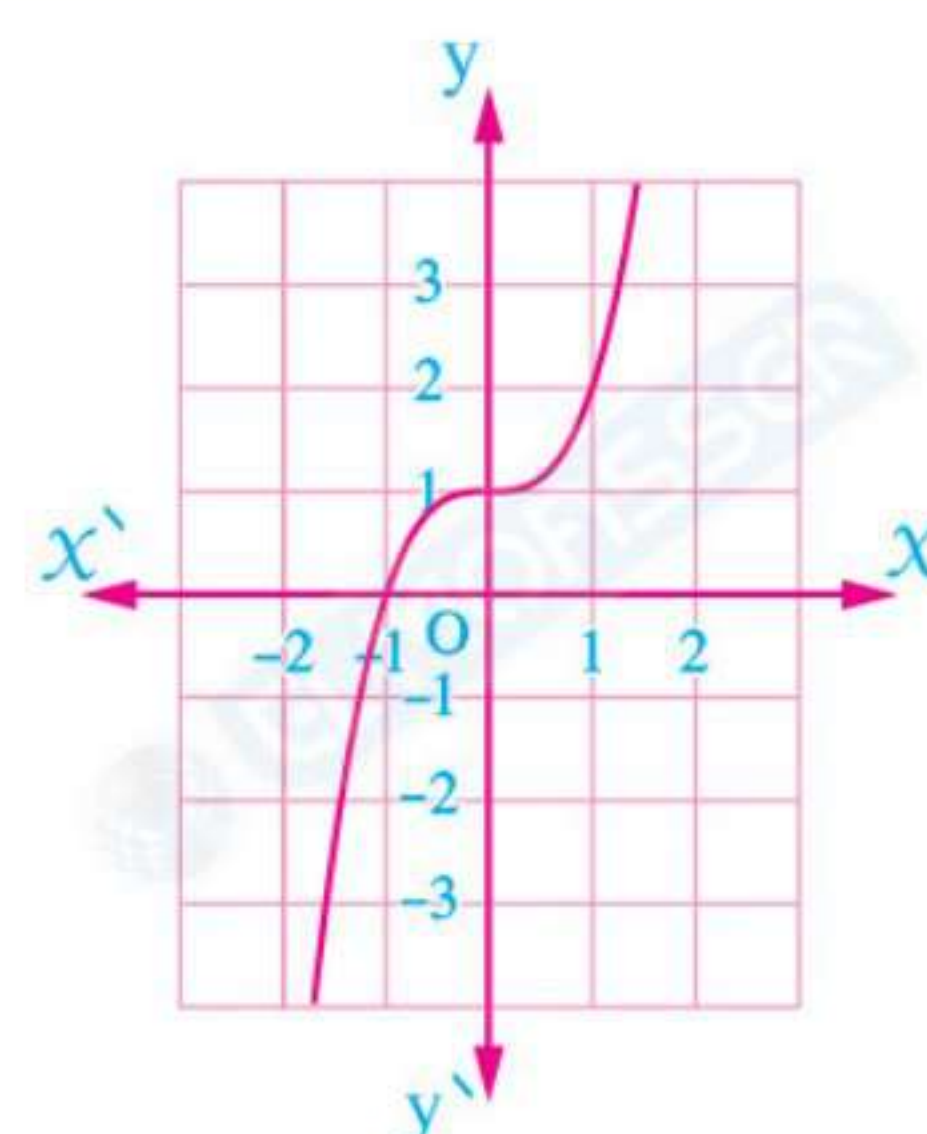
- (a) $y = x^3 - 1$ (b) $y = (x + 1)^3$
(c) $y = (x - 1)^3$ (d) $y = x^3 + 1$

- 11 $\lim_{x \rightarrow 1} \left(\frac{3}{4} \right) = \dots\dots\dots$

- (a) 3 (b) 4 (c) $\frac{3}{4}$ (d) 1

- 12 $\lim_{x \rightarrow 0} \frac{\sqrt{x+1} - 1}{x} = \dots\dots\dots$

- (a) zero (b) $\sqrt{2}$ (c) $\frac{1}{2}$ (d) not exist.



2 Answer the following questions :

- 1 Graph the curve of the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ where $f(x) = |x| - 4$, state range, type and the monotony. (2 marks)
- 2 Determine domain of the real function $f : f(x) = \frac{1}{\sqrt{3-x}}$ (2 marks)
- 3 Find : $\lim_{x \rightarrow 1} \frac{\sqrt{4x-3} - 1}{x-1}$ (2 marks)
- 4 ΔABC in which $m(\angle B) = 35^\circ$, $m(\angle C) = 70^\circ$ and radius of its circumcircle = 16 cm. Find area and perimeter of ΔABC to nearest unit. (2 marks)

Test

2

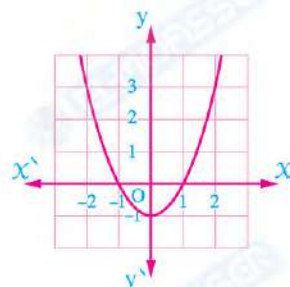
Total mark

20

1 Choose the correct answer from those given :

(12 marks)

- 1 The function $f : f(x) = 1 - |x|$ is increasing on where $f : \mathbb{R} \rightarrow \mathbb{R}$
 - (a) $]1, \infty[$
 - (b) $]0, \infty[$
 - (c) $] - \infty, 1[$
 - (d) $] - \infty, 0[$
- 2 If $\lim_{x \rightarrow 4} \frac{x^2 + 7x + a}{x^2 - 6x + 8} = \frac{15}{2}$, then $a =$
 - (a) -44
 - (b) 7
 - (c) -8
 - (d) 8
- 3 $\lim_{x \rightarrow 0} \frac{(x+5)^2 - 25}{x} =$
 - (a) 2
 - (b) 25
 - (c) 5
 - (d) 10
- 4 The point of symmetry of the function $f : f(x) = \frac{1}{x-2} + 1$ is
 - (a) $(-2, 1)$
 - (b) $(-2, -1)$
 - (c) $(2, 1)$
 - (d) $(2, -1)$
- 5 The domain of the function $f : f(x) = \begin{cases} 3-x & , -2 \leq x < 2 \\ x & , 2 \leq x \leq 5 \end{cases}$ is
 - (a) $[1, 5]$
 - (b) $[-2, 5]$
 - (c) $[1, 5]$
 - (d) $[-2, 2]$
- 6 Which of the following rules defined the curve of the function shown in the opposite figure ?
 - (a) $f(x) = x^3 - 1$
 - (b) $f(x) = x^2 - 1$
 - (c) $f(x) = x^3 + 1$
 - (d) $f(x) = x^2 + 1$
- 7 In $\triangle ABC$, $AB = 4$ cm, $\sin C = \frac{1}{3}$, then the radius of the circle passes through its vertices = cm.
 - (a) 6
 - (b) 8
 - (c) 4
 - (d) 12
- 8 In $\triangle ABC$, $m(\angle B) = 52^\circ$, $m(\angle C) = 48^\circ$, the perimeter of the triangle = 30 cm, then $a \approx$ (to the nearest cm.)
 - (a) 15
 - (b) 21
 - (c) 12
 - (d) 20



9 If f is an odd function , and its domain is $\mathbb{R}$, $a \in \mathbb{R}$, then $\frac{f(a) + f(-a)}{2} = \dots\dots\dots$

- (a) zero (b) $f(a)$ (c) $f(-a)$ (d) $f(0)$

10 Which of the following rules defined a function that is not odd ?

- (a) $f(x) = \sin x$ (b) $f(x) = \sec x$ (c) $f(x) = x^3$ (d) $f(x) = \frac{1}{x}$

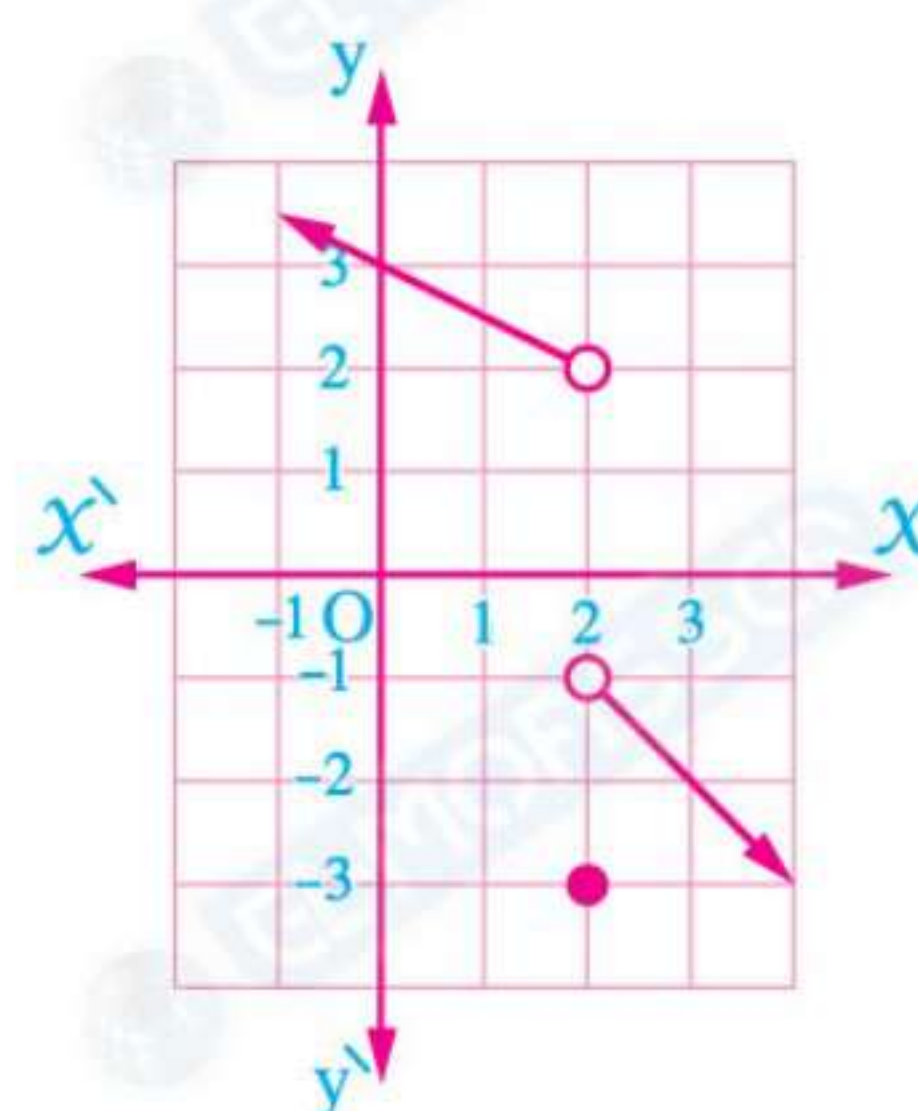
11 $\lim_{x \rightarrow -2} \frac{1}{|x|} = \dots\dots\dots$

- (a) 1 (b) -1 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

12 In the opposite figure :

$\lim_{x \rightarrow 2} f(x) = \dots\dots\dots$

- (a) -3 (b) 2
(c) -1 (d) does not exist.



2 Answer the following questions :

1 Graph the function $f : \mathbb{R} \longrightarrow \mathbb{R}$ where $f(x) = (x - 2)^3 - 1$, from the graph find the range , the monotony and determine if it is odd , even or otherwise. (2 marks)

2 If f_1, f_2 are two real functions , $f_1(x) = x^5$, $f_2(x) = \sin x$
Determine the type of the function $(f_1 + f_2)$ where it is even , odd or otherwise. (2 marks)

3 Find : $\lim_{x \rightarrow -1} \frac{x+1}{\sqrt{x+5}-2}$ (2 marks)

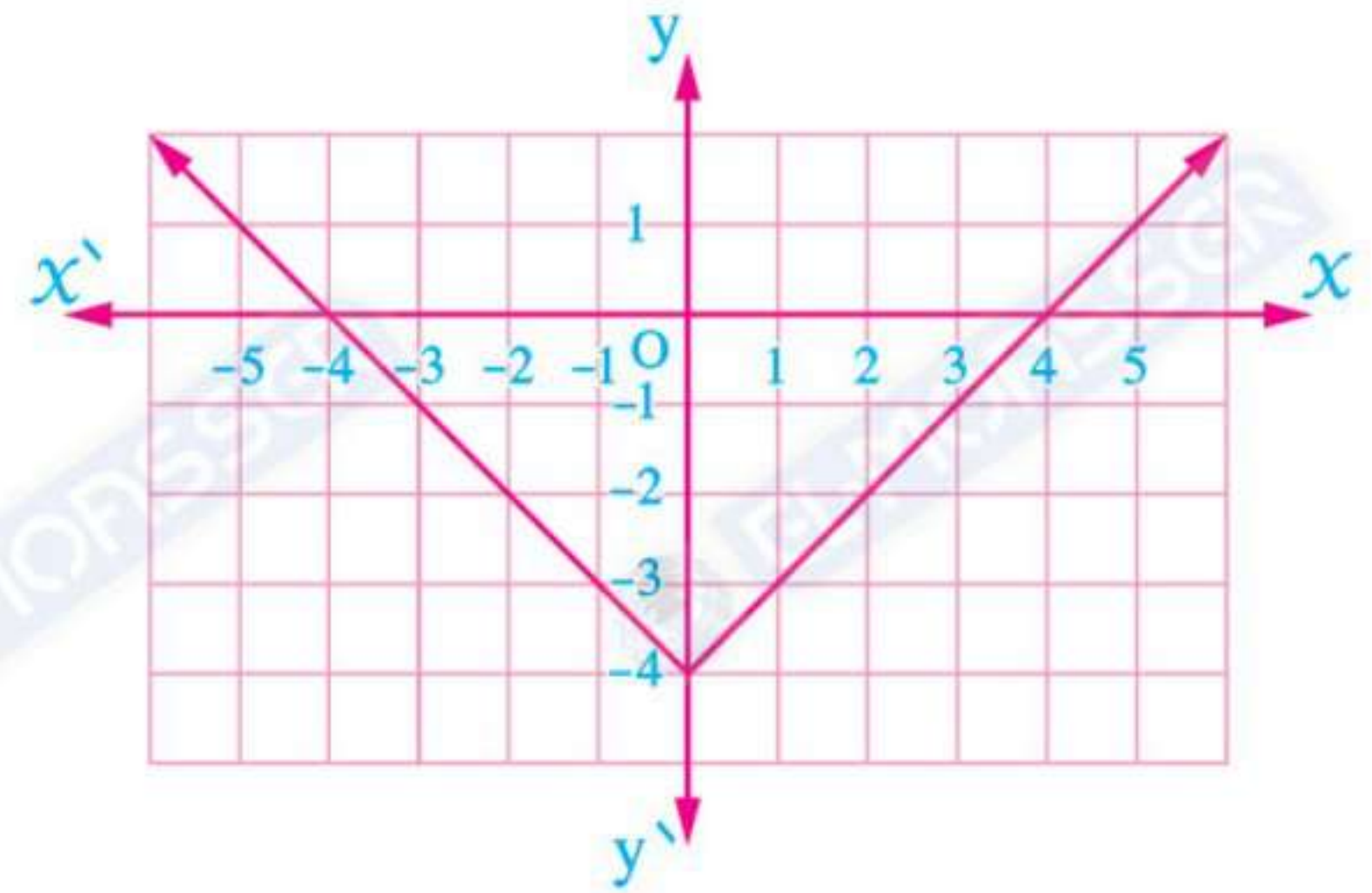
4 $\triangle ABC$ in which $b = 10$ cm. , $m(\angle A) = 40^\circ$, $m(\angle C) = 80^\circ$
 , find the length of greatest side in the triangle (2 marks)

Answers of Test 1

- 1 (d) 2 (a) 3 (c) 4 (b) 5 (d) 6 (c)
7 (b) 8 (b) 9 (a) 10 (d) 11 (c) 12 (c)

2 1 • The range = $[-4, \infty[$

- The function is even
- The function is decreasing on $]-\infty, 0[$ and increasing on $]0, \infty[$



2 Put $3 - x > 0 \quad \therefore x < 3$
 $\therefore x \in]-\infty, 3[\quad \therefore \text{domain of } f =]-\infty, 3[$

$$\begin{aligned} 3 \quad \lim_{x \rightarrow 1} \frac{\sqrt{4x-3}-1}{x-1} \times \frac{\sqrt{4x-3}+1}{\sqrt{4x-3}+1} &= \lim_{x \rightarrow 1} \frac{4x-3-1}{(x-1)(\sqrt{4x-3}+1)} \\ &= \lim_{x \rightarrow 1} \frac{4(x-1)}{(x-1)(\sqrt{4x-3}+1)} \\ &= \lim_{x \rightarrow 1} \frac{4}{\sqrt{4x-3}+1} = \frac{4}{1+1} = 2 \end{aligned}$$

4 $\therefore m(\angle A) = 180^\circ - (35^\circ + 70^\circ) = 75^\circ$

$$\therefore \frac{a}{\sin 75^\circ} = \frac{b}{\sin 35^\circ} = \frac{c}{\sin 70^\circ} = 32$$

$$\therefore a = 32 \sin 75^\circ \approx 30.9 \text{ cm.}$$

$$, b = 32 \sin 35^\circ \approx 18.4 \text{ cm.}$$

$$, c = 32 \sin 70^\circ \approx 30 \text{ cm.}$$

$$\therefore \text{Area of the triangle} = \frac{1}{2} \times 30.9 \times 18.4 \times \sin 70^\circ \approx 267 \text{ cm}^2$$

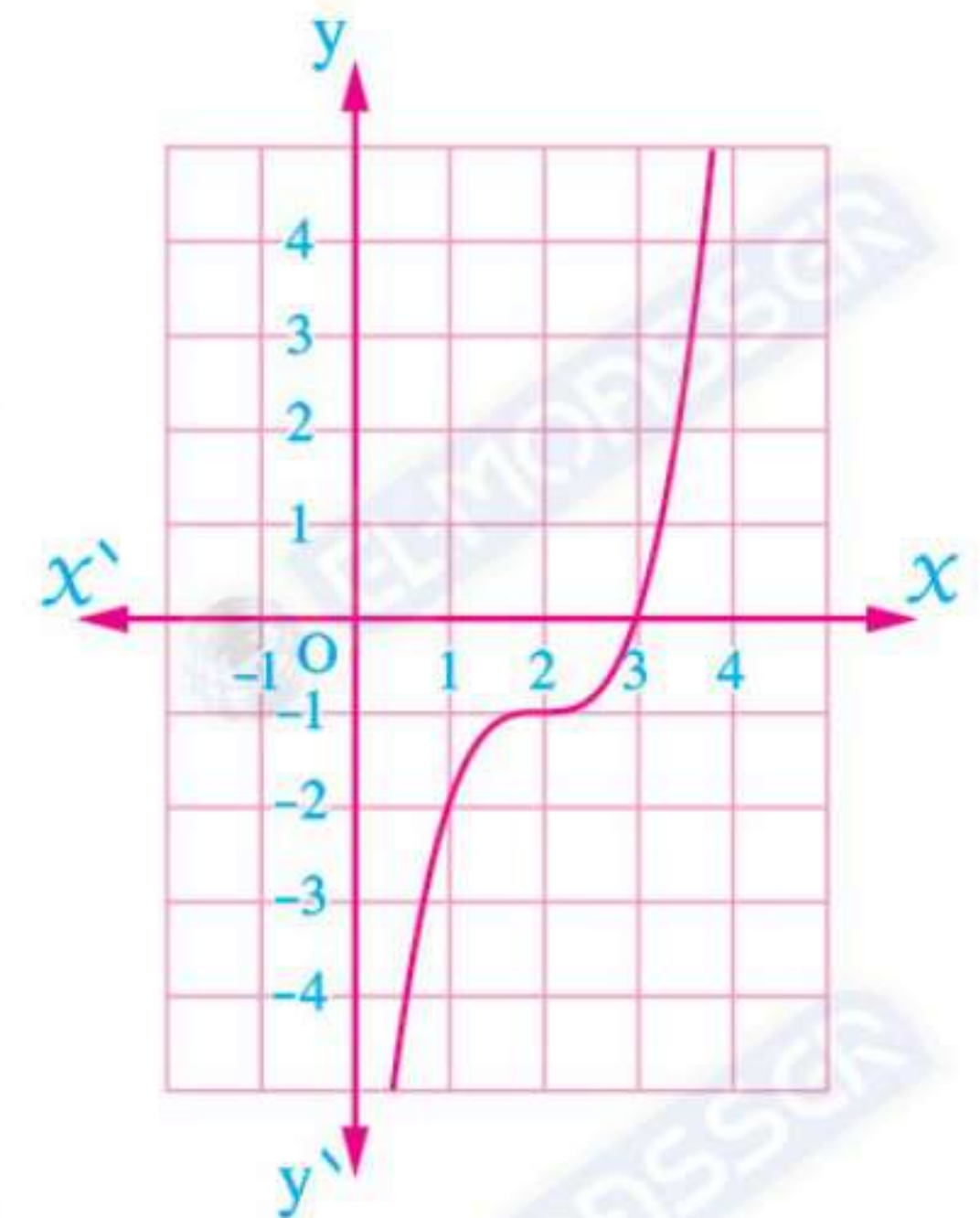
$$, \text{perimeter of the triangle} = 30.9 + 18.4 + 30 \approx 79 \text{ cm.}$$

Answers of Test 2

- 1 (d) 2 (a) 3 (d) 4 (c) 5 (b) 6 (b)
7 (a) 8 (c) 9 (a) 10 (b) 11 (c) 12 (d)

2 1 • The range = $\mathbb{R}$

- Increasing on $\mathbb{R}$
- The function neither odd nor even.



2 $\because f_1(-x) = (-x)^5 = -x^5 = -f_1(x)$

$\therefore f_1$ is odd function

$\because f_2(-x) = \sin(-x) = -\sin x = -f_2(x)$

$\therefore f_2$ is odd function

$\therefore f_1 + f_2$ is odd function

3
$$\lim_{x \rightarrow -1} \frac{x+1}{\sqrt{x+5}-2} = \lim_{x \rightarrow -1} \frac{(x+1)}{\sqrt{x+5}-2} \times \frac{\sqrt{x+5}+2}{\sqrt{x+5}+2}$$
$$= \lim_{x \rightarrow -1} \frac{(x+1)(\sqrt{x+5}+2)}{x+5-4} = \lim_{x \rightarrow -1} (\sqrt{x+5}+2) = 4$$

4 $\because m(\angle B) = 180^\circ - (40^\circ + 80^\circ) = 60^\circ$

$\therefore \angle C$ is the greatest angle in measure

$\therefore c$ is the longest side

$\therefore \frac{c}{\sin 80^\circ} = \frac{10}{\sin 60^\circ}$

$\therefore c = \frac{10 \sin 80^\circ}{\sin 60^\circ} \approx 11 \text{ cm.}$

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

اختبار شهر اكتوبر



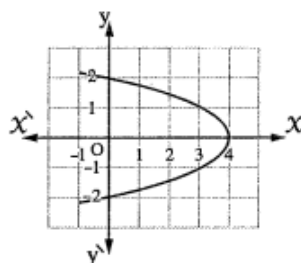
(Unit 1)

Real functions

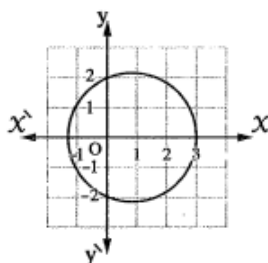
(Domain, Range and monotony)

1-

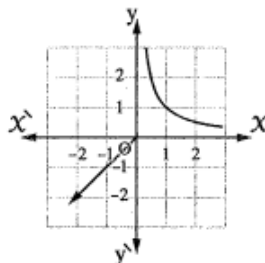
(1) Which of the following figures represents a function of X ?



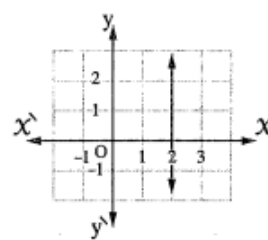
(a)



(b)



(c)



(d)

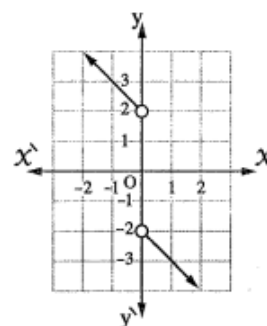
(2) The opposite figure represents a function of X whose domain is

(a) $\mathbb{R}$

(b) $\mathbb{R} -]-1, 2[$

(c) $\mathbb{R} - [-1, 2]$

(d) $\mathbb{R} - \{0\}$



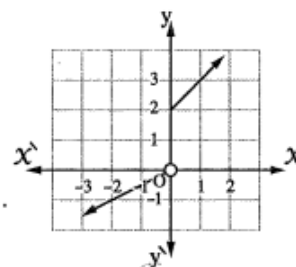
(3) The opposite figure represents a function of X whose range is

(a) $\mathbb{R} - [0, 2]$

(b) $\mathbb{R} - \{0\}$

(c) $\mathbb{R} - [0, 2[$

(d) $\mathbb{R} -]0, 2]$



(4) $f(X) = \sqrt{4 - X^2}$, then the domain of the function $f = \dots\dots\dots$

(a) $[-2, 2]$

(b) $] -2, 2[$

(c) $[-2, 2[$

(d) $] -2, 2]$

Operations on functions (composition functions)

2-

Choose the correct answer from those given :

(1) $f(x) = \frac{1}{x}$, $g(x) = \sqrt{x}$, then the domain of $(f \circ g) = \dots\dots\dots$

- (a) $\mathbb{R} - \{0\}$ (b) $\mathbb{R}$ (c) $\mathbb{R}^+$ (d) $[0, \infty[$

(2) $f(x) = x + 1$, $g(x) = x^2$, then $(f \circ g)(2) = \dots\dots\dots$

- (a) 3 (b) 4 (c) 5 (d) 9

(3) The domain of the function $f : f(x) = \sqrt{5-x}$ equals $\dots\dots\dots$

- (a) $\mathbb{R} - \{5\}$ (b) $\mathbb{R}^+$ (c) $]-\infty, 5]$ (d) $[5, \infty[$

(4) $f(x) = \sqrt{x}$, $g(x) = x^2$, then the domain of $(f \circ g) = \dots\dots\dots$

- (a) $[0, \infty[$ (b) $\mathbb{R}$ (c) $\mathbb{R}^+$ (d) $\mathbb{R}^-$

3-

If $f(x) = \frac{1}{x}$, $g(x) = x + 3$, find :

(1) $(f \circ g)(x)$

(2) $(g \circ f)(x)$

and state the domain in each case.

4-

If $f(x) = \frac{1}{x}$, $g(x) = x + 3$, find :

(1) $(f \circ g)(x)$

(2) $(g \circ f)(x)$

and state the domain in each case.

Properties of functions

5-

Find the type of each function whether it is even , odd or otherwise :

$$(1) f(x) = \frac{x^3}{|x| + 2}$$

$$(2) f(x) = \sin x^2 - \sin^2 x$$

6-

[b] If $f(x) = x - 1$, $g(x) = \sqrt{x}$, then find $(g \circ f)(x)$ and determine its domain , then find $(g \circ f)(5)$

7-

Draw the graph of the function $f : f(x) = \begin{cases} x|x| & \text{when } x < 0 \\ \frac{x^4}{|x|} & \text{when } x > 0 \end{cases}$

, then deduce its domain and discuss its type whether it is even , odd or otherwise.

Graphical (basic and piecewise)

8-

Graph the function $f : f(x) = 4 - (x - 2)^2$, then deduce its range, its monotony and whether the function is odd, even or otherwise.

9-

Graph the function $f : [-2, 6] \longrightarrow \mathbb{R}$ where $f(x) = \begin{cases} 4 - x & , \quad -2 \leq x < 1 \\ x & , \quad 1 \leq x \leq 6 \end{cases}$
and from the graph deduce its range and discuss its monotonicity.

10-

Graph the function $f : f(x) = \begin{cases} x - 1 & , \quad 2 < x \leq 4 \\ -1 & , \quad -2 \leq x \leq 2 \end{cases}$
from the graph determine its range.

11-

[b] If $f : [-4, 3] \longrightarrow \mathbb{R}$, $f(x) = \begin{cases} 4 & \text{when } x < 0 \\ (x - 1)^2 + 1 & \text{when } 0 \leq x \leq 3 \end{cases}$

, graph the function f , then from the graph, **deduce** :

(1) The range.

(2) The monotonicity.

(3) The type (even, odd, otherwise).

Geometric transformations

12-

Use the graph of the function f where $f(x) = x^2$ to represent the function g where $g(x) = (x - 1)^2 + 2$ and from the graph determine the range of the function g and discuss its monotonicity and tell whether it is even, odd or otherwise.

13-

Use the curve of the function f where $f(x) = x^3$ to represent each of the following functions :

(1) $f_1(x) = (x + 1)^3$

(2) $f_2(x) = x^3 + 1$

(Unit 3) Introduction of limits of functions

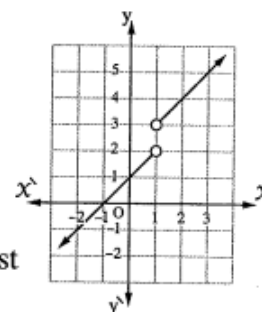
1-

Choose the correct answer from those given :

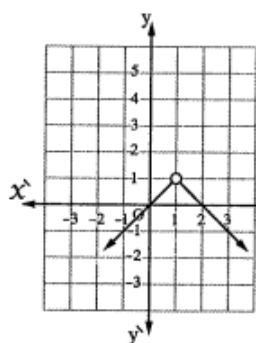
(1) The opposite figure represents the graph of the function f , then

$$\lim_{x \rightarrow 1} f(x) = \dots\dots\dots$$

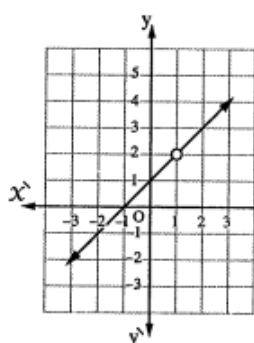
- (a) 2 (b) 3 (c) 1 (d) not exist



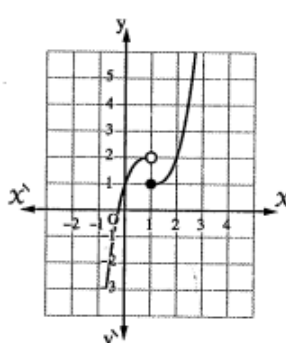
(2) Which of the following functions has no limit at $x = 1$?



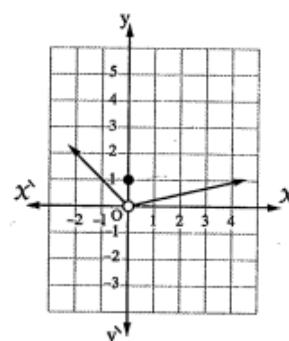
(a)



(b)



(c)



(d)

2-

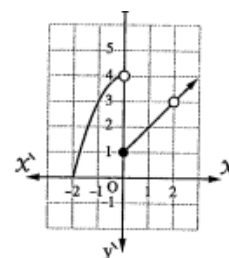
In the opposite figure , find :

(1) $f(\text{zero}^+)$

(2) $f(\text{zero}^-)$

(3) $f(2)$

(4) $\lim_{x \rightarrow 2} f(x)$



Finding the limit of the function algebraically

3-

Choose the correct answer from those given :

(1) $\lim_{x \rightarrow 0} \frac{1+x}{4x-1} = \dots\dots\dots$

- (a) -1 (b) $\frac{1}{4}$ (c) $-\frac{1}{4}$ (d) 1

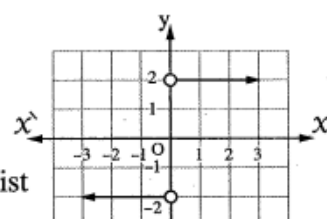
(2) $\lim_{x \rightarrow 3} \frac{x^2-9}{x-3} = \dots\dots\dots$

- (a) -6 (b) zero (c) 3 (d) 6

(3) The opposite figure represents $f(x)$

Then : $\lim_{x \rightarrow 2} f(x) = \dots\dots\dots$

- (a) 0 (b) -2 (c) 2 (d) not exist



4-

Find :

$$\lim_{x \rightarrow 3} \frac{x^2 - x - 6}{x - 3}$$

5-

Find :

$$\lim_{x \rightarrow -1} \left(\frac{5x^2 + 5x}{3x^2 - 3} \right)$$

6-

$$\lim_{x \rightarrow 0} \frac{x^2 + x}{x} = \dots\dots\dots$$

7-

Find : $\lim_{x \rightarrow 1} \frac{x^3 - 2x^2 + 1}{x^2 + x - 2}$

8-

Find :

$$(2) \lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^3 - 8}$$

9-

Find :

$$\lim_{x \rightarrow 5} \frac{x - 5}{2x - 3}$$

10-

Find : ($\lim_{x \rightarrow 2} \frac{x^3 + 8}{x + 2}$

11-

$$\lim_{x \rightarrow -3} \frac{x^2 + 4x + 3}{x^2 - 9}$$

12-

Find : (1) $\lim_{x \rightarrow -2} \frac{x^3 + 8}{x + 2}$

(Unit 4) The sine rule

1-

Solve $\triangle ABC$ in which $m(\angle B) = 35^\circ$, $m(\angle C) = 70^\circ$, and the diameter length of its circumcircle = 32 cm.

2-

In $\triangle ABC$, if $m(\angle A) = 35^\circ$, $a = 17$ cm. and $b = 20$ cm.

Prove that : $\triangle ABC$ has two solutions, then find them.

3-

Find the perimeter of $\triangle ABC$ in which $m(\angle A) = 57^\circ 13'$, $c = 8.7$ cm.
and $m(\angle B) = 64^\circ 18'$

4-

ABC is a triangle in which : $m(\angle A) = 35^\circ$, $a = 8$ cm. and $b = 6$ cm. **Find :** $m(\angle B)$

5-

ABC is a triangle in which : $b = 12$ cm., $m(\angle B) = 75^\circ$ and $m(\angle C) = 45^\circ$ **Find :**

(1) a

(2) The area of $\triangle ABC$

(3) The radius length of the circumcircle of the triangle ABC

6-

ABC is a triangle in which $m(\angle A) : m(\angle B) : m(\angle C) = 3 : 4 : 3$

If $a = 5$ cm. , find the perimeter of ΔABC

7-

Solve the triangle ABC in which $a = 8$ cm. , $m(\angle A) = 60^\circ$ and $m(\angle B) = 40^\circ$

8-

Solve the acute-angled triangle ABC in which $a = 21$ cm. , $b = 25$ cm. and the diameter length of its circumcircle = 28 cm.

9-

Find the shortest side length in ΔABC , in which : $m(\angle A) = 43^\circ$, $m(\angle B) = 70^\circ$ and $c = 9$ cm. Find the area of the triangle ABC.

10-

ABC is a triangle in which : $AC = 4.7$ cm. , $m(\angle B) = 34^\circ$ and $m(\angle C) = 66^\circ$
Find the length of $\overline{BC}$, then find the area of its circumcircle.

11-

ABC is a triangle in which $m(\angle A) = 40^\circ$, $a = 5$ cm. and $b = 7$ cm.
Find $m(\angle B)$ approximating to the nearest minute.

12-

Solve the triangle ABC in which $a = 5$ cm. , $b = 7$ cm. and $m(\angle C) = 65^\circ$

13-

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

